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THE NEW ENGLAND BOTANICAL CLUB

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THE BASIS OF NOMENCLATURE FOR ALGAE.

F. S. Collins.

Readers of the article "On the Vienna Rules of Botanical Nomenclature" in the March Rhodora will remember that Art. 9 reads "The rules and recommendations of botanical nomenclature apply to all classes of the plant kingdom, reserving special arrangements for fossil plants and non-vascular plants"; and that a footnote states that these special arrangements have been reserved for the Congress of 1910. The questions involved in regard to cryptogams are many and difficult to answer, and when we consider the long and careful work that was necessary to reach a conclusion in regard to the vascular plants, the time before the next Congress is none too long for their consideration. "Botanical nomenclature begins with the Species Plantarum of Linnaeus," says Art. 19; but if one considers the quite insignificant space given to the cellular cryptogams in this work, it might possibly be called a "point" for starting, certainly not a "base" for anything. The writer cannot claim any familiarity with the subject except as regards the algae, but would like to call attention to some features of their case.

While the number of known species of flowering plants has increased almost in geometrical ratio, the idea of a species, on the whole, remains about the same. Some species have been found to be aggregates; with rapidly increasing numbers of species more attention has to be given to smaller details, but in the great majority of cases the characters by which species are differentiated can be seen by the naked eye, or with a pocket lens. As regards algae, not one species in a hundred can be described so that it could be recognized without the use of the microscope, usually requiring quite high powers. Of course none of these could have been recognized in Linnaeus's day, nor for a long time afterwards. The system of classification adopted by Linnaeus for flowering plants remained in general use until superseded by a natural system, which in its general outlines and often in considerable detail is accepted at present. But all through the nineteenth century system after system was proposed for the algae, each practically beginning anew, the position of genera changing with kaleidoscopic rapidity. It is sometimes really pathetic to see with what conscientious care a system was developed on what we now know to have been scanty material, imperfect data, and misinterpreted observations. Occasionally we find a piece of work in some limited field of which the records have been supplemented rather than superseded by later observations; thus the insight of Vaucher's Histoire des Conferves, that celebrated its centenary four years ago, is little short of marvellous, when we consider the scanty appliances then available; Nägeli's Gattungen einzelliger Algen of 1848 must be referred to to-day by everyone studying the unicellular algae; but Nägeli's system, like the systems of Kützing and the others, was hardly more permanent than last year's snows. Back of the time of C. Agardh, in the earlier part of the last century, practically no types are to be found; and though in the Agardh herbarium, continued by the son, J. G. Agardh, we have a most valuable collection of original specimens, we find in many cases that more than one species, as we now know them, was included under one name; it was impossible to distinguish them at that day, and of course the diagnosis, giving only the characters then discernible, gives us little help as to which species should bear the name. Evidently the basis that is suitable for the nomenclature of the *Rosaceae* is not suitable for the nomenclature of the *Chlorophyceae*.

But is it possible to fix any one satisfactory basis for algae in general? The more we look at it, the less likely it seems. The larger algae, those included in the genus *Fucus*, were fairly well known to the older authors, so that nearly all of the species in Turner's Icones Fucorum, 1808–1819, remain valid to-day; but this is by no means the case with the species of Dillwyn's British Confervae of 1809. To ignore Turner's species in the Icones would certainly be unwise; to identify species of *Microspora* or *Oedogonium* by Dillwyn would be very difficult. Though the idea of different starting points for different families of algae may seem at first undesirable, it may be the best solution of the problem; a definite proposition to that effect, the first proposition of the kind as far as known to the writer, has been made by Prof. O. Nordstedt.[1] As Nordstedt is the highest authority on the desmids, was a member of the Congress of Vienna, and was appointed on the committee to take charge of the preliminary work on non-vascular plants for the Congress of 1910, his opinions should carry much weight. He considers in detail all the genera and many of the species of desmids, proposed in the first half of the last century, a chaotic assemblage. While some authors made contributions of merit, there is no one work that can be considered as at all complete to its time until we come to Ralfs, who in 1848 published The British Desmidieae; this work gives detailed descriptions and excellent figures of all the British forms, and has as an "Appendix," a list of all other known species, a large part of them also with figures and descriptions. With few exceptions all the literature of the desmids up to 1848 was gone over by Ralfs, and references noted; the few papers to which Ralfs does not refer have been analyzed by Nordstedt, and while they add a few synonyms to Ralfs's species very little other change would have been necessary had Ralfs used them. There are a few genera in Ralfs's work which might have to give place to older names if we could be certain where we are now doubtful, but as after careful study of the older authors the uncertainty remains and is likely to continue, Nordstedt considers that the wisest plan will be to adopt for the desmids the rule "The nomenclature begins with the British Desmidieae by Ralfs in 1848." As a second rule he provides that all names used by Ralfs in Brit. Desm. as of earlier authors, should be so quoted, but only as so attributed by Ralfs; for instance *Euastrum oblongum* Grev. sec. Ralfs, Brit. Desm.

That this plan will simplify the nomenclature of the desmids is unquestionable, and that it will cause any serious inconvenience is unlikely. That Ralfs's monograph contains a few genera no longer classed as desmids can occasion no trouble, nor the fact that some of his genera have since been divided; that is merely what has always happened with increasing knowledge and discoveries of new forms. While in some cases Ralfs may have been misled by a faulty or hazy description by some older author, the chance of our now correcting this error is too small to outweigh the real gain of accepting Ralfs's definite description and clear figure, and working from them.

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[1] Algological Notes 1–4. 1. The starting point of the nomenclature of Desmids. Botaniska Notiser, 1906, p. 97.

At the close of his paper Nordstedt mentions three monographs which may be used for bases in their respective sections; for practical work all three are now the standards, but to those who are worshipers of priority in itself, rather than as far as it may be the most useful means to an end, it will be rather a shock to find that these monographs date from 1888, 1893 and 1900 respectively: Gomont, Monographie des Oscillariées, 1893, and Bornet et Flahault, Revision des Nostocacées hétérocystées contenues dans les principaux herbiers de France, 1886–1888, have brought order where disorder reigned before; but as Nordstedt himself notes, they seldom recognize any species of which the authors have not examined authentic specimens; following each genus is a list of species inquirendae. Hirn, Monographie und Iconographie der Oedogoniaceen, 1900, is a more complete work, covering practically all known species, with full illustrations. It should be added that in the case of the heterocysted nostocs, Bornet and Flahault have since 1888, as a consequence of the examination of original specimens before unseen, published a paper changing in some few instances the names used in the Revision. What the status of these later names would be in case of the Revision being accepted as the beginning of nomenclature might be an interesting question.

In conclusion; the fact that Nordstedt recommends Ralfs as the starting point for the nomenclature of desmids is in itself a strong argument in favor of the plan, and a careful reading of his paper will prove quite convincing, it would seem, to any one who had not in some way prejudged the matter. It is likely that in regard to the other groups Nordstedt's suggestions, which are put forward as propositions only and without evidence or argument, may meet with more opposition; if so, however, it is for their opponents to propose something better.

Malden, Massachusetts.

REPORTS ON THE FLORA OF THE BOSTON DISTRICT,— I.

Over a year ago the New England Botanical Club decided to collect information in regard to the plants growing within 25 miles of Boston. This district was afterward extended, so that it runs northward to the New Hampshire line; west to include Dunstable, Groton, and Ayer; then southward along the Worcester county line, including Southboro, to Bellingham, on the Rhode Island boundary; thence eastward to the coast at Duxbury. The district thus formed is a good geographical unit, bounded by the New Hampshire line, the hill country of central Massachusetts, and the level sand-plain and morainal territory of southern Bristol and Plymouth counties. It therefore seems that it should possess a definite flora of its own, distinct in many ways from regions to the north, west and south.

The committee in charge has gathered a large amount of data in regard to the ferns of this district, which has been condensed into the present form for publication. This list is still regarded as a preliminary one, and any additions or corrections will be welcomed. There is especial lack of information in regard to the outlying towns of the region, in the south and west portions.

Card-records have been received regarding the ferns of this district from the Gray Herbarium, the Ames Botanical Laboratory, and the herbaria of Tufts College, the New England Botanical Club, the Boston Society of Natural History, the Appalachian Club, and the Bridgewater State Normal School. The following individual collectors have also furnished cards recording the ferns in their collections: Dr. C. A. Cheever, Hon. J. R. Churchill, J. A. Cushman, Walter Deane, Raynal Dodge, A. A. Eaton, F. G. Floyd, T. O. Fuller, C. H. Knowlton, A. H. Moore, C. H. Morss, A. S. Pease, George O. Tilton, R. A. Ware and E. F. Williams.

Wherever unusual ferns have been reported, the specimens themselves have been examined. Special examination has been made of the ferns in the Gray Herbarium, the Davenport collection of the Massachusetts Horticultural Society, and the herbaria of the New England Botanical Club and the Ames Botanical Laboratory. The Committee wishes to express its indebtedness to Dr. B. L. Robinson of the Gray Herbarium for advice and assistance in preparing this report.

POLYPODIACEAE.

POLYPODIUM.

P. vulgare L. Dry rocks and ledges, common.

PHEGOPTERIS.

P. polypodioides (L.) Fée. Damp rich woods; occasional, especially northward.

P. hexagonoptera (Michx.) Fée. Rich open woods, not common. All reports are from the central part of our territory.

P. Dryopteris (L.) Fée. Rich especially coniferous woods; occasional in Essex County, but rare elsewhere; not reported south of Needham.

ADIANTUM.

A. pedatum L. Rich deciduous woods; generally distributed, but only locally abundant.

PTERIS.

P. aquilina L. Dry open woods and uplands, common.

WOODWARDIA.

W. virginica (L.) Sm. Wet woods and peat-bogs, sometimes in water; frequent.

W. areolata (L.) Moore. (*W. angustifolia* Sm.) Swamps and wet woods; frequent within ten miles of tide-water, the stations often extensive.

ASPLENIUM.

A. Trichomanes L. Dry ledges; frequent, but never abundant in our range.

A. platyneuron (L.) Oakes. (*A. ebeneum* Ait.) Rocky soil and ledges throughout.

Var. **serratum** (E. S. Miller) BSP. One specimen, collected in Malden by Mr. George E. Davenport in 1872 and identified by Dr. Asa Gray, is now in the Gray Herbarium; and another, from Melrose, is in the Davenport Collection.

A. acrostichoides Sw. (*A. thelypteroides* Michx.) Rich woods; occasional in the northern towns, less frequent southward.

A. Filix-femina (L.) Bernh. Usually in damp woods and shaded places, though occasionally in drier situations; common and varying much with the conditions of soil, moisture, and shade. Var. **angustum** (Willd.) D. C. Eaton. Woods, occasional.

CAMPTOSORUS.

C. rhizophyllus (L.) Link. Granite ledges, Needham, where observed as early as 1877; formerly also on Doublet Hill, Weston.

POLYSTICHUM.

P. acrostichoides (Michx.) Schott. (*Aspidium acrostichoides* Sw.) Rocky woods, distributed here and there, but not very common. Var. **Schweinitzii** (Beck) Small. (Var. *incisum* Gray.) Amesbury (*J. W. Huntington*); Andover (*A. S. Pease*); Blue Hills (*E. F. Williams*).

ASPIDIUM.

A. Thelypteris (L.) Sw. Swamps, common everywhere.

Forma **Pufferae** (A. A. Eaton) B. L. Robinson in herb. *Nephrodium Thelypteris*, forma *Pufferae* A. A. Eaton. Border of meadows, Sudbury (*Mrs. J. J. Puffer*). See Eaton, Fern Bull. x, 78.

A. simulatum Davenp. Swampy woods; locally abundant; often associated with the preceding and with *Woodwardia areolata*. See Davenp. Bot. Gaz. xix. 494, 495.

A. noveboracense (L.) Sw. Low open woods, common.

A. marginale (L.) Sw. Rocky woods, common throughout. Var. ELEGANS J. Robinson (Bull. Essex Inst. vii. 51) is a luxuriant form with the pinnules more deeply crenate-toothed. This form not very sharply distinguishable from the type has been found at Ipswich (*Oakes*), Swampscott (*J. Robinson*), and Milton (*F. G. Floyd*).

A. Boottii Tuckerm. Low woods, frequent.

A. cristatum (L.) Sw. Open and wooded swamps; frequent: reported as abundant in Brockton, Easton, and in northern Essex County. Var. **Clintonianum** D. C. Eaton. Wooded swamps, occasional; not reported from open land. Not so extreme as the more northern and western specimens.

A. cristatum × **marginale** Davenp. Where swamps meet the rocky woods, rare. First described by Mr. Davenport from northern Essex County; Boxford, Merrimac, Salisbury, Medford, Byfield, Brockton; see Davenp. Bot. Gaz. xix. 494, 495.

A. spinulosum (O. F. Müller) Sw. Low open woods, frequent.

Var. **intermedium** (Muhl.) D. C. Eaton. Rich woods, frequent.

Var. **dilatatum** (Hoffm.) Hook. Swampy woods, fairly plentiful at Brockton (A. A. Eaton).

Forma **anadenium** B. L. Robinson.[1] This form, characterized by a glandless or essentially glandless indusium, includes the greater part of what has heretofore passed as var. *dilatatum* in America. It may be distinguished from the typical *A. spinulosum* by the narrower firmer and darker brown scales of the stipes and from var. *intermedium* by its broader ovate fronds and glandless indusium. In our region it is relatively rare and never quite so characteristic as in mountain specimens. Reports indicate that it has been found in Chelsea, Dedham, Manchester, and Woburn.

Var. **concordianum** (Davenp.) Eastman. Rich swampy woodland, Concord (*Purdie & Brewster, Davenport & Purdie*). See Rhodora, vi. 31–33.

CYSTOPTERIS.

C. fragilis (L.) Bernh. Moist or wet rocks and ledges in shade; not common, especially southward.

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[1] Concerning this form Dr. Robinson makes the following statement: "*Aspidium spinulosum*, var. *dilatatum* (Hoffm.) Hook., as it occurs in Europe, regularly exhibits a glandular indusium, a fact substantiated by specimens and by the statements of several critical and reliable authors, such as Moore, Milde, Christ, and others. This European form must be regarded as the typical state of the variety. Until recently it has been almost unknown in America. To it seems to belong, however, the plant not long since described as *Nephrodium spinulosum*, var. *fructuosum* Gilbert, and study of a considerable suite of American specimens referred to Var. *dilatatum* shows that the indusium is occasionally glanduliferous as in the European plant. Nevertheless, as Prof. D. C. Eaton long ago remarked the indusium in the American Var. *dilatatum* is habitually glandless. This glandless form, which is readily recognizable with a good lens, seems never to have had a distinctive name and may therefore be called A. spinulosum, var. dilatatum, forma **anadenium,** n. f. indusio glandulis fere vel omnino destituto.— As an appropriate type-specimen for this new form I would mention a plant collected in deciduous woods, alt. 760 m., 14 August, 1895, on Barren Mt., Elliottsville Piscataquis County, Maine, by M. L. Fernald, no. 426 (type in hb. Gray; cotypes in several public and private herbaria). Forma *anadenium* is widely distributed in Atlantic North America, chiefly in mountainous regions."

WOODSIA.

W. ilvensis (L.) R. Br. Exposed dry ledges, occasional.

W. obtusa (Spreng.) Torr. Shaded ledges; scattered stations throughout.

DICKSONIA.

D. punctilobula (Michx.) Gray. (*D. pilosiuscula* Willd.) Moist soil in open places and light shade; common.

ONOCLEA.

O. sensibilis L. Damp woods and meadows, abundant.

O. Struthiopteris (L.) Hoffm. Moist soil, usually in shade; rare; not reported south of Boston.

LYGODIUM.

L. palmatum (Bernh.) Sw. Low thickets, rare. Carlisle, Concord, Dover (1883, 1884), Saugus (1885), Newton; the last three stations probably extinct.

OSMUNDA.

O. regalis L. Swamps, wet woods, and lake shores; common.

O. Claytoniana L. Somewhat less common than the following species.

O. cinnamomea L. Swamps and low woods, common. The formal var. FRONDOSA Gray is occasionally found with the typical form.

OPHIOGLOSSACEAE.

OPHIOGLOSSUM.

O. vulgatum L. Moist fields and pastures, local.

BOTRYCHIUM.

B. simplex E. Hitchcock. Low woods; Amesbury, Byfield, Easton, Salisbury, W. Newbury.

B. lanceolatum (Gmel.) Ångstr., var. **angustisegmentum** Pease & Moore. Low woods, rare; stations occasionally large. See Rhodora, viii. 229.

B. ramosum (Roth) Aschers. (*B. matricariaefolium* A. Br.) Low woods; Amesbury, Dedham, Natick, Needham, Salisbury, W. Newbury.

B. obliquum Muhl. Old fields and pastures; occasional, and locally abundant.

Var. **elongatum** Gilbert & Haberer. Georgetown (*Mrs. C. S. N. Horner*, specimen in hb. N. E. Bot. Club, also in the Davenport Collection).

Var. **dissectum** (Spreng.) Clute. Old fields and pastures, frequent.

B. ternatum (Thunb.) Sw., var. **intermedium** D. C. Eaton. Old fields, pastures, and rarely in woods; frequent.

B. virginianum (L.) Sw. Rich woods, occasional.

A. K. Harrison,
(Chairman)
F. F. Forbes, } *Committee on local flora*
C. H. Knowlton,
R. A. Ware.

PRELIMINARY LISTS OF NEW ENGLAND PLANTS,—XX.

SPARGANIACEAE.[1]

M. L. Fernald and A. J. Eames.

[The sign + indicates that an herbarium specimen has been seen; the sign — that a reliable printed record has been found.]

	Me.	N. H.	Vt.	Mass.	R. I.	Conn.
Sparganium americanum Nutt.	+	—	+	+	+	+
" " var. androcladum (Engelm.) Fernald & Eames	+	+	+	+	+	+
" angustifolium Michx.	+	+	+	+		+
" diversifolium Graebner	+	+	+	+		+
" " var. acaule (Beeby) Fernald & Eames	+	+	+			+
" eurycarpum Engelm.	+	—	+	+	+	+
" fluctuans (Morong) Robinson	+	+	+	+		+
" lucidum Fernald & Eames				+		
" minimum Fries	+		+	+		+
" simplex Hudson	+		+			

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[1] Printed in Rhodora as supplementary material.

NOTES UPON THE ABOVE LIST.

Sparganium fluctuans (Morong) Robinson. For detailed discussion see RHODORA, vii. 60 (1905).

Sparganium simplex Hudson has been reported from all the New England states, but it is very doubtful if it occurs as far south as Massachusetts. Most of the plants of southern New England so reported have proved to be either *S. americanum*, *S. diversifolium* or its var. *acaule*, or *S. lucidum*. The New England plants which have been passing as *S. simplex* may be distinguished as follows.

SPARGANIUM SIMPLEX AND ITS NEW ENGLAND ALLIES.

* Pistillate heads or branches of the inflorescence strictly axillary.

+- Mature fruits dull: stigma 1–2 mm. long.

S. AMERICANUM Nutt. Stoutish, 3–7 dm. high: leaves deep green, dorsally carinate, 6–12 mm. broad: bracts divaricate or arcuate-ascending, the lowest 0.8–2.2 dm. long: inflorescence simple: pistillate heads 2 to 5, all axillary, sessile or nearly so, in fruit 1.8–2.6 cm. in diameter: tepals with dilated and rounded erose summits; their bases closely investing the stipe of the carpel: mature fruits brownish, fusiform; the narrowly ellipsoid or subcylindric body 5–6 mm. long, 2–3 mm. thick; the beak (including the stigma) 2.5–4 mm. long, about equalling the slender stipe.— Gen. ii. 203 (1818). *S. simplex*, var. *Nuttallii* Engelm. in Gray, Man., ed. 5, 481 (1867); Morong, Bull. Torr. Cl. xv. 79 (1888). *S. simplex* of many Am. auth., not Hudson. *S. angustifolium* Graebner in Engler., Pflanzenr. iv. no. 10, 16, in part (1900), not Michx. *S. Nuttallii* Engelm. according to Graebner, l. c. (1900). *S. americanum*, var. *Nuttallii* Graebner, l. c. (1900). *S. simplex*, var. *americanum* Farwell, Ann. Rep. Mich. Acad. Sci., vi. 202 (1904).— Bogs and muddy shores, New Brunswick to Iowa and Virginia; also in eastern Asia.

Var. **androcladum** (Engelm.), n. comb. Inflorescence bearing from its lower axils 1 to 3 weak branches: leaves often broader (rarely 2 cm. broad): lowest bract 1.5–5 dm. long.— *S. simplex*, var. *androcladum* Engelm. in Gray, Man., ed. 5, 481 (1867). *S. ramosum* Chapm. Fl. 443 (1860), not Huds. *S. androcladum* Morong, Bull. Torr. Cl. xv. 78 (1888); Graebner in Engler, Pflanzenr, iv. no. 10, 15 (1900).— Similar places, more common, Newfoundland to Minnesota, south to Florida and Missouri.

+- +- Mature fruits lustrous: stigma 2.5–4 mm. long.

S. lucidum, n. sp. Planta 7.5–9 dm. alta; foliis 5–12 mm. latis, erectis, firmis et haud pellucidis, valde carinatis, inflorescentiam simplicem vel ramosam multo supereminentibus, capitibus vel ramis plane axillaribus; bracteis patente ascendentibus, infima 2.5–4 dm. longa; capitibus femineis sessilibus vel infimis pedunculatis, ad maturitatem circiter 3 cm. diametro; tepalis ad stipitem affixis, ligulatis, apice dilatatis et rotundis, subintegris vel erosis; costa media prominente et in apice suo incrassata; fructubus maturis lucidis, olivaceo-brunneis, breviter stipitatis, corpore subterete, 5–6 mm. longo, 2–3 mm. crasso; stylo subulato-filiforme, 5–7 mm. longo, parte lineare stigmatica adunca, 2.5–4 mm. longa.

Plant 7.5–9 dm. high: leaves 5–12 mm. broad, erect, firm and opaque, strongly carinate, much overtopping the simple or forking inflorescence: the heads or branches strictly axillary: bracts spreading-ascending, the lowest 2.5–4 dm. long: pistillate heads sessile, or the lowest peduncled, in fruit about 3 cm. in diameter: tepals attached to the stipe, ligulate, with dilated and rounded sub-entire or erose tips; the midrib prominent and thickened at its apex: mature fruits lustrous, olive-brown, short-stipitate; the subterete body 5–6 mm. long, 2–3 mm. thick: style subulate-filiform, 5–7 mm. long; the linear stigmatic portion hooked, 2.5–4 mm. long. — MASSACHUSETTS, small pond, Medford, July 29, 1860 (*Wm. Boott*); muddy shore of Half-way Pond, Barnstable, August 23, 1888 (*W. Deane*): PENNSYLVANIA, ditches, Philadelphia, September, 1876 (*I. C. Martindale*): ILLINOIS, without station (*S. B. Mead*): MISSOURI, Springfield, September 1, 1893 (*J. W. Blankinship* in hb. Deane).

* * One or more of the pistillate heads supra-axillary.

+– Erect plants of shores and swamps: leaf-blades of uniform texture, somewhat translucent and reticulated under a lens.

S. DIVERSIFOLIUM Graebner. Erect, stoutish, 3–6 dm. high: leaves delicate, cellular-reticulated on both sides, 4–9 mm. wide, with a broad scarious margin toward the base: bracts strongly ascending, the lowest 2–5 dm. long: inflorescence mostly simple, rarely with 1 or 2 weak branches: pistillate heads 2 to 4, chiefly sessile, the lower remote and supra-axillary, in fruit 2–2.5 cm. in diameter.— Graebner in Schrift. naturf. Ges. Danzig, N. F., ix. (1895) 335, t. 8, fig. 1, and in Engler, Pflanzenr, iv. no. 10, 21, fig. 4 F. (1900). *S. simplex* in great part of Am. auth., not Hudson.— Eastern Quebec to South Dakota, Connecticut and Illinois and probably southward; also in Europe. Passing to

Var. **acaule** (Beeby), n. comb. Dwarf, 1–3 dm. high: leaves and bracts comparatively narrow; the lowest strongly ascending bract 1–3 dm. long: pistillate heads 1.5–2 cm. in diameter, usually crowded. — *S. simplex*, var. *acaule* Beeby in Macoun, Cat. Can. Pl. ii. 367 (1890). *S. diversifolium*, proles *nanum* Graebner in Engler, Pflanzenr. iv. no. 10, 21 (1900). *S. nanum* Fries according to Graebner, l. c. (1900).— Newfoundland to Iowa and West Virginia.

+ + Strictly aquatic: leaf-blades reticulated beneath, opaque above.

++ Fruits rather abruptly slender-beaked: leaf-blades 1.5–4 mm. broad: stigma rarely over 1.2 mm. long.

S. ANGUSTIFOLIUM Michx. Slender aquatic: stems 3–12 dm. long: leaves exceedingly long and narrow, opaque: bracts comparatively short, slightly dilated at base, the lowest 0.5–3 dm. long: inflorescence simple, at the surface of the water: pistillate heads 1 to 3, sessile or peduncled (the lowest peduncle rarely 9 cm. long), in fruit 1.3–2 cm. in diameter: fruits 1.5–2 mm. thick, drab, with reddish-brown bases.— Fl. ii. 189 (1803); Graebner in Engler, Pflanzenr. iv. no. 10, 16, in part (1900). *S. simplex*, var. *angustifolium* Engelm. in Gray, Man., ed. 5, 481, (1867). *S. affine* Macoun, Cat. Can. Pl. ii. 71 (1888), perhaps also of Schnitzlein, Nat. Pfl. Typh. 27 (1845).— Ponds and slow streams, Newfoundland to Alaska, south, especially among the mountains, to Connecticut, New York, Colorado and California; ascending in alpine ponds to an altitude of 1140 m. on Table-top Mountain, Gaspé, and to 3500 m. in Colorado. Perhaps also in Eurasia (*S. affine* Schnitzlein).

++ ++ Fruits gradually acuminate: leaf-blades 4–9 mm. broad: stigma 1.5–2 mm. long.

S. SIMPLEX Hudson. Coarser, and in our region strictly aquatic: stems 3–10 dm. long: bracts somewhat dilated at base, the lowest 1–4 dm. long: inflorescence usually simple, elongated: pistillate heads 2 to 4, mostly supra-axillary, the lowermost long-peduncled, in fruit 2–2.5 cm. in diameter: fruit 1.5–2.5 mm. thick.— Fl. Angl. ed. 2, 401 (1778); Am. auth. in small part only; Graebner in Engler, Pflanzenr. iv. no. 10, 16 (1900).— Newfoundland to British Columbia, south to Maine, northern Vermont, Lake Superior region, Colorado, Utah, and California; also Eurasia.

Var. MULTIPEDUNCULATUM Morong. Heads aggregated, mostly pedunculate, subcorymbose.— Bull. Torr. Cl. xv. 79 (1888); Graebner in Engler, Pflanzenr. iv. no. 10, 17 (1900). *S. multipedunculatum* Rydberg, Bull. Torr. Cl. xxxii. 598 (1905).— From the Mackenzie River to Colorado and California; to be expected in northern New England and adjacent Canada.

SUGGESTIONS FOR SPECIAL OBSERVATIONS.

Sparganium angustifolium Michx. should be sought in the ponds and lakes of northwestern Rhode Island.

S. diversifolium Graebner may be sought in northwestern Rhode Island, and its var. *acaule* should be looked for there and in central and western Massachusetts.

S. *fluctuans* (Morong) Robinson may be expected in the larger ponds and lakes of northwestern Rhode Island.

S. *lucidum* Fernald & Eames, as yet known only from eastern Massachusetts, Pennsylvania, Illinois and Missouri, is probably in Rhode Island and Connecticut.

S. *minimum* Fries may be confidently sought in clear cold streams of northern New Hampshire.

S. *simplex* Huds. is apparently rare in northern and central Maine and northern Vermont, but it should be sought in all the larger lakes of northern New England.

Gray Herbarium.

CAUSES OF VARIATION IN COLOR IN SOME RED ALGAE.

William A. Terry.

For many years past I have noticed a marked difference in color in specimens of red algae from different localities; this is specially noticeable in *Dasya elegans* (Mart.) Ag.; plants from South Beach, a mile or more east of the entrance to New Haven harbor, always drying a sepia brown, while those from below Woodmont, some miles west, dry a dark purple, and those from Fort Hale, inside the harbor, show a bright crimson pink color. These differences are constant, and have shown themselves so for many years. My specimens are taken, when possible, directly from the rocks on which they grow; they are generally procured by wading at lowest tide, but sometimes from a boat by means of a sharp-edged scraper with a long handle. Such specimens are much deeper in color than those from shallow water. When broken from their holdfasts they change rapidly in color, in a few hours showing a decided tinge of brown. All these fine red seaweeds, if mounted in salt water, lose their characteristic color from the concentration of the salt, and become more or less black. To obviate this as much as possible, I lay out and cleanse the plant in a dish of salt water, then transfer on the cardboard to a mounting board in fresh water, rapidly place and lift out of the water, drain slightly and place in driers which are changed frequently until dry. In this way much of the original color remains in some species; others obstinately persist in turning black when drying. The different behavior of plants apparently quite similar led me to make some experiments last November, which gave me new light on the question. I found most beautiful plants of the delicate Callithamnion of a most brilliant rosy color growing in deep water on the reef at Woodmont, and was much disappointed to find them losing their color in drying. I had used sometimes the city water and sometimes water from the shallow wells of the region in mounting, and I found a slight difference in favor of the city water; I then experimented with rain water, with marked success. It was evident that the mineral dissolved in the ordinary water was sufficient to destroy the color in drying.

The rocks on which the seaweeds grow at South Beach are red granite. The beach contains a large amount of red sand, sufficiently heavy to be easily separated from the quartz sand by washing. A superficial examination seems to show zircon and garnet, and a mineralogist to whom I sent a sample said that it contained about two per cent of monazite. The rocks on which the red Dasya grows at Fort Hale are trap. The purple Dasya at Woodmont grows on a curious shale or slate, that suggests the vicinity of magnesian limestone. It is penetrated by fresh water springs from the mainland, the water containing iron and lime.

THE SCIENTIFIC NAME OF THE OSAGE ORANGE.— The Osage Orange, although it has borne in the past a variety of scientific names, appears to have no designation which is in accord with the Vienna Rules. These legitimize the generic name *Maclura* of Nuttall but necessitate the restoration of the earlier specific name of Rafinesque. The needed binomial and its synonymy are as follows:—

Maclura pomifera (Raf.), n. comb.
Ioxylon pomiferum Raf. Am. Monthly Mag. ii. 118 (1817).
Maclura aurantiaca Nutt. Gen. ii. 233 (1818).
Broussonetia tinctoria Spreng. Syst. iii. 901 (1826) in part, not HBK.
Toxylon aurantiacum Raf. Med. Fl. ii. 268 (1830).
T. Maclura Raf. New Fl. N. A. iii. 43 (1836).
Toxylon pomiferum Sarg. Silv. vii. 89 (1895).

B. L. ROBINSON.

Alchemilla pratensis found at Westford, Massachusetts.— Some months ago I noticed a plant at Westford, Massachusetts, which I identified as an *Alchemilla.* To be quite sure of the determination I sent a specimen to the Gray Herbarium, but even there a positive specific identification could not be made until some identical specimens from Nova Scotia had been forwarded to Dr. Buser, of Geneva, a well known specialist on the genus. Dr. Buser pronounced the plant *A. pratensis* F. W. Schmidt. I am informed that this European species has become well established and abundant in several parts of Nova Scotia, but seems not to have been noticed in New England. It is therefore suggested that its occurrence at Westford, however casual, is of sufficient interest to be recorded in order that botanical collectors may be on the outlook for other New England stations. The species was found in a neighbor's back yard, where chickens were kept, and the most natural supposition is that the seed was introduced with chicken-feed. There were in all five individuals, one large and the others apparently recent seedlings from it. Although the flowers are small and inconspicuous the species is an attractive one, and in our flora it will be pretty easily recognized by its orbicular deeply cordate and shallowly 7–9-lobed leaves. — Emily F. Fletcher, Westford, Massachusetts.

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